

REMARKS/ARGUMENTS

The present Amendment is responsive to the non-final Office Action mailed May 17, 2007 in the above-identified application.

Claims 1-27 are the claims currently pending in the present application.

Claims 1 and 22 are amended to clarify features recited thereby. Further, claims 2-3, 7, 13, 15, 20-21 and 23-27 are amended to conform them more closely to United States patent practice style and to eliminate duplicatively recited features.

Applicant thanks the Examiner for acknowledging the claim for foreign priority and the receipt of the priority document. Further, applicant thanks the Examiner for acknowledging review and consideration of the references cited in the Information Disclosure Statement filed on March 17, 2006.

Rejection of Claims 1, 5, 20-23 and 25 under 35 U.S.C. § 102

Claims 1, 5, 20-23 and 25 are rejected under 35 U.S.C. § 102(e) as being anticipated by Korbik et al., U.S. Patent No. 6,843,958. Reconsideration of this rejection is respectfully requested.

Claim 1 requires a cooling plate that comprises holding pipes leading to the outside through the outer casing plate and securing elements securing the cooling plate via the holding pipes to the outer casing plate, the holding pipes and the securing elements being comprised of a material with a greater strength than the copper or low-alloy copper alloy of the cooling plate.

Further, claim 22 requires a cooling plate comprising holding pipes leading to the outside, and securing elements comprised of a material with a higher strength than the copper or low-alloy copper alloy of the cooling plate for securing the cooling plate to the outer furnace casing plate via the holding pipes.

According to an aspect of applicant's invention as claimed in claims 1 and 22, a copper or copper alloy cooling plate is secured to a casing plate by holding pipes with securing elements comprised of a material with a higher strength than the copper or copper alloy of the cooling plate. Accordingly, any stresses in the Z-direction (toward the inside or the outside of the furnace) are borne by the high-strength holding pipes and securing elements, as disclosed by applicant's disclosure, page 3, lines 14-19. Thus, temperature-induced disc-shaped deformations

of the cooling plate, for example deformations in toward the center of the furnace, are avoided and stress-induced cracks of the cooling pipes may be prevented.

Korbik is a reference cited in applicant's disclosure (Specification, page 1, line 36). Korbik discloses a cooling plate made of copper for a metallurgical furnace in which cooling medium pipes of the copper cooling plate are included to supply and remove a cooling medium. The copper cooling plate is connected free of play in all spatial directions to the furnace steel jacket by at least one fixed-point fastening element welded to the furnace steel jacket and is connected by way of the cooling medium pipes welded to the furnace steel jacket (Korbik, Abstract). As shown in Figs. 1 and 2 of Korbik, the cooling plate 10 is fastened to the furnace steel jacket 15 by way of fixed-point fastening element 11 and cooling medium pipes 13 and 14 are fastened by way of a washer 17 (Korbik, column 3, lines 39-56). Korbik also discloses that the cooling medium pipes may be attached to the furnace steel jacket via compensators 16 (Korbik, column 3, lines 53-56), however Korbik teaches that the compensators 16 are optional and, as shown in Figs. 3 and 4 of Korbik, all the compensators can be eliminated because the relative thermal expansions between the fixed-point fastening elements and the fixed positions of the upper and lower cooling medium pipes 13 and 14 are so minimal that they can be neglected (Korbik, column 4, lines 13-18).

First, Korbik does not disclose or suggest holding pipes and securing elements securing the cooling plate via the holding pipes to the outer casing plate, the holding pipes and securing elements comprised of a material with a greater strength than the copper or low-alloy copper alloy of the cooling plate, as required by claim 1. Further, Korbik does not disclose or suggest securing elements comprised of a material with a higher strength than the copper or low-alloy copper alloy of the cooling plate for securing the cooling plate to the outer furnace casing plate via the holding pipes, as required by claim 22. Korbik does not disclose or suggest the relative strength of metals or other materials used in the furnace, let alone specify that a holding pipe or securing element has a higher strength than the copper or copper alloy of the cooling plate.

Further, Korbik does not disclose or suggest holding pipes that secure the cooling plate, which holding pipes have a higher strength. Compensator 16 is labeled in the Office Action as a "holding pipe" (Office Action, page 2). However, as discussed, the compensator 16 functions to secure the lower cooling medium pipes 13 and 14 to the furnace steel jacket 15. The compensator 16 is not disclosed by Korbik to be involved in securing the cooling plate, as

required by claims 1 and 22. Accordingly, Korbik does not disclose or suggest the recitations of claims 1 and 22.

Claims 5, 20 and 21 depend from claim 1, and claims 23 and 25 depend from claim 22. Therefore, claims 5, 20, 21, 23 and 25 are patentably distinguishable over the cited art for at least the same reasons.

Rejections of Remaining Claims under 35 U.S.C. § 103

Claims 6-15 and 17-19 are rejected under 35 U.S.C. § 103 as being obvious from Korbik.

Claims 2, 3, 16, 24 and 26 are rejected under 35 U.S.C. § 103 as being obvious from Korbik.

Claim 4 is rejected under 35 U.S.C. § 103 as being obvious from Korbik in view of Stein, U.S. Patent No. 5,904,893. Reconsideration of these rejections is respectfully requested.

With respect to the obviousness rejections over Korbik alone, applicant notes that claims 2, 3 and 6-19 depend from claim 1 and claims 24 and 26 depend from claim 22. As discussed, Korbik does not disclose or suggest the recitations of claims 1 and 22. Therefore, claims 2, 3 and 6-19 are patentably distinguishable over the cited art for at least the same reasons.

Stein discloses a cooler plate for a metallurgical furnace, the furnace including a refractory lining that comprises cast copper or a low-alloy copper alloy with coolant ducts arranged in its interior (Stein, Abstract).

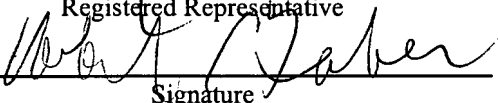
Stein does not cure the above-discussed deficiencies of Korbik as they relate to the above-noted features of claim 1. Further, the Examiner does not allege that Stein discloses or suggests such features. Therefore, since claim 4 depends from claim 1, it is patentably distinguishable over the cited art for at least the same reasons.

In view of the foregoing discussion, withdrawal of the rejections and allowance of the application are respectfully requested.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on August 14, 2007:

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Name of applicant, assignee or
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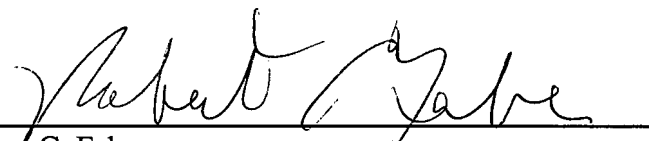
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August 14, 2007

Date of Signature

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Respectfully submitted,



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